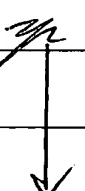Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	09/495,668
Filing Date	February 1, 2000
First Named Inventor	Sergey A. Selifonov
Group Art Unit	1631
Examiner Name	Kim, Y.
Attorney Docket Number	02-109510US

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U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
	AA	5,603,793		Yoshida et al.	02-18-1997	
	AB	6,117,679		Stemmer	09-12-2000	
	AC	6,096,548		Stemmer	08-01-2000	
	AD	6,132,970		Stemmer	10-17-2000	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Office	Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
	AE	WO	95/15972		Thomas Jefferson University	06-15-1995		
	AF	WO	95/22625		Affymax Technologies	08-24-1995		
	AG	WO	96/33207		Glaxo Group Limited	10-24-1996		
	AH	WO	98/49350		Regents of the University of Minnesota	11-05-1998		
	AI	WO	00/42560		Maxygen, Inc.	07-20-2000		
	AJ	WO	00/42561		Maxygen, Inc.	07/20/2000		
	AK	WO	00/53744		Diversa Corporation	09-14-2000		
	AL	WO	00/58517		Diversa Corporation	10-05-2000		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	AM	Giver and Arnold "Combinatorial protein design by *in vitro* recombination" *Current Opinion in Chemical Biology* (1998) 2:335-338	
	AN	Zhao et al., "Molecular evolution by staggered extension process (StEP) in vitro recombination" *Nature Biotechnology* vol. 16 (1998) pp. 258-261	
	AO	Crameri and Stemmer "10^{20}–Fold aptamer library amplification without gel purification" *Nucleic Acid Research* (1993) vol. 21, no. 18 pp. 4110.	

Examiner Signature		Date Considered	4-29-03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Attorney Docket Number	02-109510US

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✓	AP	Feng and Doolittle "Progressive Sequence Alignment as a Prerequisite to Correct Phylogenetic Trees" *J. Mol. Evol.* 35:351-360 (1987)	
	AQ	Higgins and Sharp "Fast and sensitive multiple sequence alignments on a microcomputer" *CABIOS* 5:151-153 (1989)	
	AR	Sun "Modeling DNA Shuffling" *Journal of Computational Biology* 6(1):77-90	
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	AV	Chang et al., "Evolution of a cytokine using DNA family shuffling" *Nature Biotechnology* (1999) 17:793-797	
	AW	Christians et al., "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling" *Nature Biotechnology* (1999) 17:259-264	
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	AY	Crameri et al., "Construction and evolution of antibody-phage libraries by DNA shuffling" *Nature Medicine* (1996) 2:100-103	
	AZ	Crameri et al., "Improved Green Fluorescent Protein by Molecular Evolution Using DNA Shuffling" *Nature Biotechnology* (1996) 14:315-319	
	BA	Crameri, A. et al., (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling." *Nature Biotechnology* 15:436-438	
	BB	Crameri, A. et al., (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution." *Nature* 391:288-291	
	BC	Gates, C.M. et al., (1995) "Affinity selective isolation of ligands from peptide libraries through display on a *lac* repressor 'headpiece dimer'. *Journal of Molecular Biology* 255:373-386	
✓	BD	Irvine et al., "SELEXION: Systematic Evolution of Ligands by Exponential Enrichment with Integrated Optimization by Non-linear Analysis" *J. Mol. Biol.* (1991) 222:739-761	

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	BE	Josson et al., "Quantitative sequence-activity models (QSAM)-tools for sequence design" *Nucleic Acids Res.* (1993) 21(3):733-739	
	BF	Kelly et al., "A Test of the Markovian Model of DNA Evolution" *Biometrics* (1994) 50(3):653-664	
	BG	Knaus and Bujard "P$_L$ of coliphage lambda: an alternative solution for an efficient promoter" *EMBO* (1998) 7(9):2919-2923	
	BH	Lander and Waterman "Genomic Mapping by Fingerprinting Random Clones: A Mathematical Analysis" *Genomics* (1988) 2:231-239	
	BI	Lanzer and Bujard "Promoters largely determine the efficiency of repressor action" *Proc. Natl. Acad. Sci.* (1988) 85:8973-8977	
	BJ	Minshull and Stemmer "Protein evolution by molecular breeding" *Current opinion in Chemical Biology* (1999) 3:284-290	
	BK	Ness, J. et al., (1999) "DNA shuffling of subgenominc sequences of subtilisin." *Nature Biotechnology* 17:893-896	
	BL	Stemmer "Rapid evolution of a protein *in vitro* by DNA shuffling" *Nature* (1994) 370-389-391	
	BM	Stemmer (1995) "Searching Sequence Space" *Bio/Technology* 13:549-553	
	BN	Stemmer (1995) "The Evolution of Molecular Computation." *Science* 270:1510	
	BO	Stemmer (1996) "Sexual PCR and Assembly PCR." In: *The Encyclopedia of Molecular Biology*. VCH Publishers, New York. pp. 447-457.	
	BP	Stemmer and Soong (1999) "Molecular breeding of viruses for targeting and other clinical properties." *Tumor Targeting* 4:1-4	
	BQ	Sun and Waterman "A Mathematical Analysis of in vitro Molecular Selection-Amplification" *J. Mol. Biol.* (1996) 258:650-660	
	BR	Patten, P.A. et al., (1997) "Application of DNA Shuffling to Pharmaceuticals and Vaccines." *Current Opinion in Biotechnology* 8:724-733.	
	BS	Zhang, J. et al., "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening" *Proceedings of the National Academy of Sciences, USA* (1997) 64:4504-4509	

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